

Claims

1. A phosphor for excitation by a blue-emitting radiation source, the emission from which lies in the short-wave optical spectral region from 420 to 490 nm, having a garnet structure  $A_3B_5O_{12}$ , the phosphor being activated with Ce as represented by  $A_3B_5O_{12}:Ce$ , the second component B representing at least one of the elements Al and Ga, characterized in that the first component A contains terbium.
2. The phosphor as claimed in claim 1, characterized in that the first component A is formed predominantly or solely by terbium.
3. The phosphor as claimed in claim 1, characterized in that the phosphor can be excited by radiation in the range from 430 to 470 nm.
4. The phosphor as claimed in claim 1, characterized in that the first component, in addition to Tb, contains fractions of Y, Gd, La and/or Lu.
5. The phosphor as claimed in claim 1, characterized in that a garnet of structure  $(Tb_{1-x-y}RE_xCe_y)_3(Al,Ga)_5O_{12}$  is used, where  $RE = Y, Gd, La \text{ and/or } Lu$ ;  
 $0 \leq x \leq 0.5 - y$ ;  
 $0 < y < 0.1$ .
6. The phosphor as claimed in claim 1, characterized in that the second component B additionally contains In.
7. The use of the phosphor as claimed in one of the preceding claims for excitation by a light source which emits in the blue region between 420 and 490 nm.

8. A light source which primarily emits radiation in the short-wave region of the optical spectral region between 420 and 490 nm, this radiation being partially or completely converted into longer-wave radiation by means of the phosphor as claimed in one of the preceding claims 1 to 6.
9. The light source as claimed in claim 8, characterized in that the radiation which is primarily emitted lies in the wavelength region from 430 to 470 nm.
10. The light source as claimed in claim 8, characterized in that a blue-emitting light-emitting diode, in particular based on Ga(In)N, is used as the primary radiation source.
11. A process for producing the phosphor as claimed in one of claims 1 to 6, characterized by the following process steps:
- a. Comminution of the oxides and addition of a flux;
  - b. first annealing in forming gas;
  - c. milling and screening;
  - d. second annealing.